



Original communication

Suicide of physicians in the special wards of Tokyo Metropolitan area



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ABSTRACT

Numerous studies on physician suicide in various countries have been reported but no data from Japan on the issue can be found to date. In this study, physician suicides in the special wards of Tokyo Metropolitan area in 1996–2010 were investigated retrospectively. A total of 87 cases were enrolled. The results suggested that physician suicide has been linked to pre-existing psychiatric illnesses and occupational problems, and that psychiatrists have a relatively higher suicide risk compared to those majoring in other specialties of medicine. A distinctive feature was that 19 cases had used either drugs or devices which were accessible due to their profession some time during the process of committing suicide. Another notable feature was that 4 out of 5 anaesthesiologists enrolled in the study had chosen poisoning for their suicide method, with the drugs frequently used in their speciality. The findings advocate strongly for efficient suicide prevention measures for physicians including an early detection and treatment of psychiatric illnesses, as well as an urgent need for a more effective pharmacy management in applicable institutions together with the implementation of self discipline on each physician. This is the first broad academic study on physician suicide in Japan.

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1. Introduction

Suicides numbered 32,863 in Japan in 1998 and have exceeded 30,000 in every subsequent year, which accounts for the highest rate in the world.¹ Various analyses, researches and measures have been taken by professionals in various fields to stop such a long lasting trend of a complex public health problem. However, an absence of central institution to manage the detailed data on suicide has been making it difficult to grasp the actual condition through a large scale epidemiological study nationwide.

On the other hand, the shortage of physicians in Japan has become a serious social problem in recent years.^{2,3} It is a great loss for the whole society to lose a physician by suicide, even though the number of cases is expected to be relatively small. It should be an issue to be dealt with not only by the professionals of forensic science or epidemiology, but by those from a variety of academic fields. No broad academic study on physician suicide from Japan can be found to date, due to the lack of academic epidemiological data.

The main objective of the present study was to examine the characteristics of physician suicide cases in the special wards of Tokyo Metropolitan area in 1996–2010, as the first broad academic study on the issue in Japan.

2. Methods

Data on suicides of physicians and non-physicians handled in the Tokyo Medical Examiner's Office during 1996–2010 were extracted for descriptive analysis retrospectively. The Tokyo Medical Examiner's Office is an institution in which all unnatural deaths, including suicide, occurring in the special wards of Tokyo Metropolitan area are reported and the inquests are performed. This therefore provides that all suicide cases occurring in the area are processed by this institution. Death certificates and supplementary documents were examined which included age, gender, professional speciality, past and present illness/es, device/s used, proposed motive and other relevant information of each case. The ethical committee of the Tokyo Medical Examiner's Office approved the protocol of this study.

3. Results

The total number of suicides handled in the Tokyo Medical Examiner's Office during the study period was 28248 and 87 were physicians (0.31%). Of these 87 cases, the age varied from 25 to 82 (mean = 47.97, median = 47.00) and the male to female ratio was 68:19 (the percentage of female physicians = 21.84%). The suicide methods consisted of 49 hanging, 14 poisoning, 12 jumping, 3 diving, 3 hypoxia, 3 cutting, 1 hydrogen sulfide intoxication, 1 carbon monoxide intoxication and 1 drowning. The percentage of

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methods chosen by physicians and non-physicians are shown in Fig. 1. Regardless to the suicide method, 19 physicians (21.84%) were found to have used either drugs or devices which were accessible due to their profession at some time during the process of committing suicide. Forty five cases (51.72%) had been diagnosed with a psychiatric illness, and the main motives of suicide of each case were psychiatric illnesses, occupational problems and non-psychiatric illnesses. The area of speciality of physicians consisted of 21 internists, 16 psychiatrists, 6 paediatricians, 5 anaesthesiologists, 4 dermatologists, 3 otolaryngologists, 2 radiologists, 2 surgeons, 2 obstetricians/gynaecologists, 1 orthopaedist, 1 plastic surgeon, 1 ophthalmologist, 1 pathologist, 1 researcher, 1 freelance, 1 industrial physician and 4 unknown, while 6 were junior residents (Table 1). Out of 5 anaesthesiologists, only 1 had chosen hanging as a suicide method but the remaining 4 had chosen poisoning with anaesthetics, using the devices most likely to have been taken out from their workplace (Table 2).

4. Discussion

Several studies have been carried out on the issue of suicide of physicians in various countries,^{4–10} presenting notable findings in the distribution of suicidal methods and specialities in medicine. The present study revealed numerous noteworthy findings on the issue, some of which were unique in characteristics.

The mean and median age of physician suicides enrolled in the present study, 47.97 and 47.00 respectively, had no statistical difference compared to those of non-physician suicides in the equivalent period (mean = 49.69, median = 51.00, $p > 0.05$). The

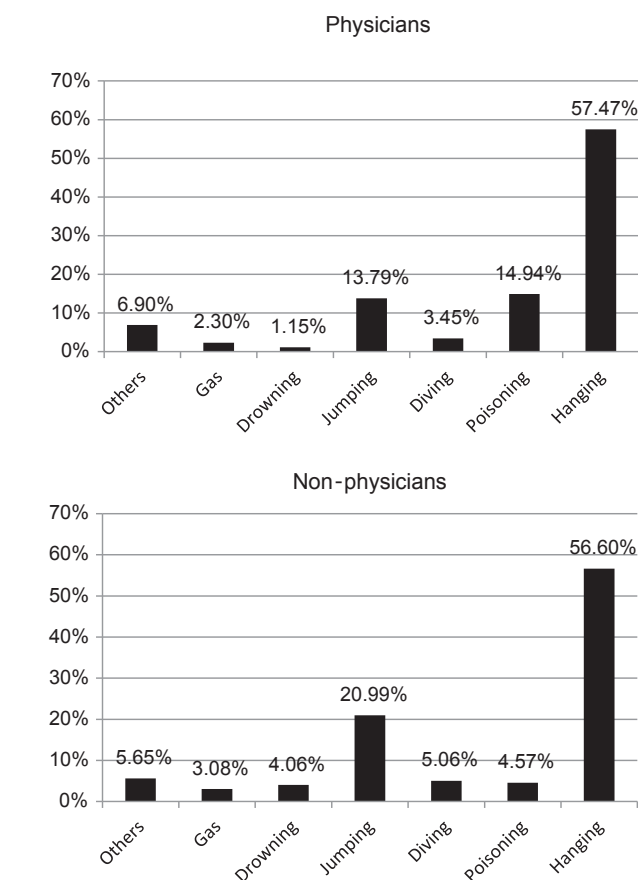


Fig. 1. The suicide method of physicians and non-physicians in 1996–2010 in the Tokyo Metropolitan area.

Table 1
The speciality of physicians on the national registry and those in the present study.

	Percentage in physicians over 15 years	Number of physician suicide	%
Internists	37.15–40.65%	21	24.14
Dermatologists	2.95–3.06%	4	4.60
Paediatricians	5.58–5.98%	6	6.90
Psychiatrists	4.64–5.06%	16	18.39
Surgeons	9.54–12.03%	2	2.30
Orthopaedists	7.09–7.44%	1	1.15
Plastic surgeons	0.57–0.78%	1	1.15
Ophthalmologists	4.56–4.99%	1	1.15
Otolaryngologists	3.22–3.84%	3	3.45
Obstetricians/gynaecologists	4.40–5.39%	2	2.30
Radiologists	1.82–2.00%	2	2.30
Anaesthesiologists	2.19–2.75%	5	5.75
Unknown	0.47–0.77%	13	16.09
Others	7.32–13.96%	10	11.49

percentage of female physicians enrolled in the study (21.84%) was slightly higher compared to the percentage of females accounting for whole physicians; which increased from 13.39% in 1996 and 18.94% in 2010.^{11,12}

It was found that 45 out of 87 cases had been diagnosed and received some kind of treatment for a psychiatric illness. Furthermore, a closer examination of supplementary documents revealed that the most common motives of suicide were pre-existing psychiatric illnesses, mostly depression, followed by occupational problems and non-psychiatric illnesses. There has been some evidence that depression, drug abuse, and alcoholism are often associated with suicides of physicians according to the studies conducted in other countries,^{8,9} which is in accordance with the results of present study. The most common motive among non-physician suicides during the equivalent period was also psychiatric illnesses [data not shown], which indicates that an early detection and an appropriate treatment of psychiatric illnesses would be a key factor in the prevention of suicides, regardless of the occupational background.

It has been pointed out that psychiatrists and anaesthesiologists have a relatively higher risk of suicide compared to physicians majoring in other specialities.^{10,13,14} According to the biennial reports released by the Ministry of Health, Labour and Welfare of Japan in 1996–2010, psychiatrists accounted for 4.64–5.06% of the whole registered physicians respectively.^{11,15–21} On the other hand, there were 16 psychiatrists (18.39%) enrolled in the present study, which accounted for a distinctly higher percentage compared to the proportion of physicians in the national registry over the equivalent period; the assumption that the speciality distribution is the same in the Tokyo Metropolitan area. It is unknown whether there are occupational stresses particular to the psychiatric fields of medicine, or if the choice of speciality is influenced by factors that might differentially influence risk. However, there is a study reporting high levels of stress and dissatisfaction for psychiatrists.²²

The present study revealed that the most common suicide method was hanging for physicians. Although the percentage of suicidal poisoning for physicians was relatively high compared to that of non-physicians, it only accounted for about a quarter of that of hanging (Fig. 1). On the other hand, poisoning was found to be the most common suicide method among physicians in some previous studies.^{4,7} Some authors suggested that this phenomenon is due to physicians being rich in knowledge on lethal drugs and doses, as well as accessibility to them. While these factors may have had effects to the results, another factor

Table 2
The method of suicide by the speciality of physicians.

Speciality/ method of suicide	Internists	Dermatologists	Paediatricians	Psychiatrists	Surgeons	Orthopaedists	Plastic surgeons	Ophthalmologists	Otolaryngologists	Obstetricians/ gynaecologists	Radiologists	Anaesthesiologists	Unknown	Others	Total
Hanging	14	2	4	12			1	1	1	2	1	1	6	4	49
Poisoning	3	1		3							4		1	2	14
Diving	1													1	3
Jumping			2		2			1					3	3	12
Drowning	1														1
Gas	1	1												2	2
Others				1	1	1		1		2	1		2		6
Total	21	4	6	16	2	1	1	1		2	2	5	13	10	87

for consideration was established through the cases noted in the present study.

Physicians generally have more knowledge of effective suicide methods than those with less medical knowledge. It is notable that either drugs or devices only accessible to medical professionals had been used during the process of committing suicide in 19 out of 87 cases (21.84%). Furthermore, it is concerning to note that 4 out of 5 anaesthesiologists had chosen poisoning for their method of suicide, using anaesthetics; droperidol, vecuronium bromide, midazolam, barbiturate and propofol. This is a distinct contrast to internists, with only 4 out of 21 using accessible medical drugs or devices during the suicidal process. Anyhow, these results indicate that an easy access to and a substantial knowledge of potentially dangerous drugs may lead to an inappropriate usage. For example, it is well known to medical professionals that propofol has sedative and relaxing properties, and brings euphoric feelings.²³ Quite a number of lethal cases have been reported on those dying from the misuse of propofol on themselves.^{24–27} Medical institutions are responsible in managing potentially dangerous drugs and devices appropriately, but it also strongly depends on the moral of each professional involved. Every member of staff, not only those with management responsibilities, should be aware that there is a possibility that they might be used for unintended purposes other than suicide, such as addiction and homicide. There are case reports in which anaesthetics were suspected of having been accessories in homicides.^{28,29}

It is clear that measures need to be taken to address the current problem of drug and device misuse by physicians. With the availability and ease of obtaining them along with the difficulty of detection, the use of prescribed drugs for wrong purposes, including suicide, will probably continue in the future. However, the best solution may not be to place restrictions on their circulation as the majority would be used for their intended purpose. Instead, a more strict pharmacy accounting of potentially dangerous drugs and devices in applicable institutions, together with the implementation of self-discipline on physicians should be encouraged to prevent their illicit diversion.

There are a number of limitations to this study. Due to the extremely small number of cases covered despite 15 years of study period, it is impossible to draw a reliable conclusion on the trends on physician suicide by age and period. A new distinctive characteristic may be revealed by continuous research on the issue and the accumulation of further cases of this nature. Furthermore, the study is based only on the physician suicides occurred in the Tokyo Metropolitan area. A different trend, such as the distribution in the speciality of medicine, may be observed in the other areas of the nation, particularly in the rural area.

5. Conclusion

Although the number of physician suicide accounted for less than 1% of whole suicides in the Tokyo Metropolitan area, numerous distinctive features were observed by background analyses. The results of the present study should encourage physicians and all physician associated co-workers to pay attention to the need for early intervention for psychiatric illness among themselves, and also to review of pharmacological management in their workplace and their morals as professionals handling potentially dangerous drugs and devices.

Conflict of interest

The authors have no conflict of interest.

References

1. Analytical data on suicide released by the National Police Agency [Japanese]. <http://www.t-pec.co.jp/mental/2002-08-4.htm>.
2. Toyabe S. Trend in geographic distribution of physicians in Japan. *Int J Equity Health* 2009;**8**:5.
3. Nomura K. Physician shortage in Japan: the new postgraduate medical education program and physicians as a human medical resource. *Nihon Eiseigaku Zasshi* 2011;**66**:22–8.
4. Aasland OG, Ekeberg O, Schweder T. Suicide rates from 1960 to 1989 in Norwegian physicians compared with other educational groups. *Soc Sci Med* 2001;**52**:259–65.
5. Hawton K, Clements A, Sakarovitch C, Simkin S, Deeks JJ. Suicide in doctors: a study of risk according to gender, seniority and specialty in medical practitioners in England and Wales, 1979–1995. *J Epidemiol Community Health* 2001;**55**:296–300.
6. Hawton K, Clements A, Simkin S, Malmberg A. Doctors who kill themselves: a study of the methods used for suicide. *QJM* 2000;**93**:351–7.
7. Lindeman S, Läärä E, Vuori E, Lönnqvist J. Suicides among physicians, engineers and teachers: the prevalence of reported depression, admissions to hospital and contributory causes of death. *Acta Psychiatr Scand* 1997;**96**:68–71.
8. Simon W. Suicide among physicians: prevention and postvention. *Crisis* 1986;**7**:1–13.
9. Roy A. Suicide in doctors. *Psychiatr Clin North Am* 1985;**8**:377–87.
10. Rich C, Pitts F. Suicide by psychiatrists: a study of medical specialists among 18730 consecutive deaths during a 5-year period 1967–1972. *J Clin Psychiatry* 1980;**41**:261–3.
11. Analytical data on medical doctors released by the Ministry of Health, Labour and Welfare [Japanese]. http://www.mhlw.go.jp/toukei/saikin/hw/ishi/10/dl/kekka_1.pdf.
12. Analytical data on medical doctors released by the Ministry of Health, Labour and Welfare [Japanese]. <http://www1.mhlw.go.jp/toukei/sansi/1-2.html>.
13. Carpenter LM, Sverdlow AJ, Fear NT. Mortality of doctors in different specialties: findings from a cohort of 20000 NHS hospital consultants. *Occup Environ Med* 1997;**54**:388–95.
14. Lew EA. Mortality experience among anesthesiologists, 1954–1976. *Anesthesiology* 1979;**51**:195–9.
15. Analytical data on medical doctors released by the Ministry of Health, Labour and Welfare [Japanese]. <http://www.mhlw.go.jp/toukei/saikin/hw/ishi/08/dl/gaikyo1.pdf>.
16. Analytical data on medical doctors released by the Ministry of Health, Labour and Welfare [Japanese]. <http://www.mhlw.go.jp/toukei/saikin/hw/ishi/06/kekka1-2-3.html>.
17. Analytical data on medical doctors released by the Ministry of Health, Labour and Welfare [Japanese]. <http://www.mhlw.go.jp/toukei/saikin/hw/ishi/04/kekka1-2-3.html>.
18. Analytical data on medical doctors released by the Ministry of Health, Labour and Welfare [Japanese]. <http://www.mhlw.go.jp/toukei/saikin/hw/ishi/02/kekka1-2-3.html>.
19. Analytical data on medical doctors released by the Ministry of Health, Labour and Welfare [Japanese]. <http://www.mhlw.go.jp/toukei/saikin/hw/ishi/00/kekka1-2-3.html>.
20. Analytical data on medical doctors released by the Ministry of Health, Labour and Welfare [Japanese]. http://www1.mhlw.go.jp/toukei/h10sanshi_8/sec15.html.
21. Analytical data on medical doctors released by the Ministry of Health, Labour and Welfare [Japanese]. <http://www1.mhlw.go.jp/toukei/sansi/1-3.html>.
22. Benbow SM, Jolley DJ. Burnout and stress amongst old age psychiatrists. *Int J Geriatr Psychiatry* 2002;**17**:710–4.
23. Kirby RR, Colaw JM, Douglas MM. Death from propofol: accident, suicide, or murder? *Anesth Analg* 2009;**108**:1182–4.
24. Kranioti EF, Mavroforou A, Mylonakis P, Michalodimitrakakis M. Lethal self administration of propofol (Diprivan). A case report and review of the literature. *Forensic Sci Int* 2007;**167**:56–8.
25. Iwersen-Bergmann S, Rösner P, Kühnau HC, Junge M, Schmoldt A. Death after excessive propofol abuse. *Int J Legal Med* 2001;**114**:248–51.
26. Chao TC, Lo DS, Chui PP, Koh TH. The first fatal 2,6-di-isopropylphenol (propofol) poisoning in Singapore: a case report. *Forensic Sci Int* 1994;**66**:1–7.
27. Drummer OH. A fatality due to propofol poisoning. *J Forensic Sci* 1992;**37**:1186–9.
28. Balasubramaniam B, Park GR. Sexual hallucinations during and after sedation and anaesthesia. *Anaesthesia* 2003;**58**:549–53. Review.
29. Madea B, Musshoff F. Homicidal poisoning with halothane. *Int J Legal Med* 1999;**113**:47–9.